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PATENT**REMARKS**

Claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50 are currently pending.

Claims 12-37 and 51-78 are withdrawn.

Claims 3, 6, 40 and 43 are canceled.

Claims 1 and 38 are amended to require a solid containing anions wherein the anions are selected from a Markush group consisting of chlorite, bisulfite, sulfite, hydrosulfide, sulfide, hypochlorite, cyanide and nitrite. Support is provided by former claims 6 and 43. Claims 8 and 46 are amended to require a solid containing anions, and carbon dioxide and ozone are deleted from the Markush group listing of gases. Claims 11 and 50 are amended to require a solid containing chlorite or nitrite anions, and peroxide anions are deleted.

The Declaration of Stephen T. Wellinghoff Under 37 C.F.R. §1.132 is submitted herewith to address the cited art.

A. The Claimed Invention

The subject matter of the pending claims has been discussed previously. By the present amendment, the claims (1) are now directed to solids containing anions, (2) do not include bicarbonate, carbonate and peroxide anions within their scope and (3) do not include carbon dioxide and ozone within their scope.

B. Rejection under 35 U.S.C. §102(b) over Matsumoto et al. U.S. Patent No. 5,108,649 or Okuda et al. U.S. Patent No. 5,330,661 or Ringo U.S. Patent No. 5,008,096 or Schenck U.S. Patent No. 5,753,106

Reconsideration is respectfully requested of the rejection of claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50 as being anticipated by Matsumoto et al. U.S. Patent No. 5,108,649 or Okuda et al. U.S. Patent No. 5,330,661 or Ringo U.S. Patent No. 5,008,096 or Schenck U.S. Patent No. 5,753,106.

Matsumoto, Okuda, Ringo and Schenck were discussed and remarked upon in

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the 10 December 2004 response to the 10 September 2004 Office action, the contents of which are incorporated into this response. Applicants offer the following additional remarks regarding those references.

As explained in the Wellinghoff declaration, Matsumoto does not describe the release of a gas as required by the present claims. (See the Wellinghoff Declaration at ¶ 6.) In fact, Matsumoto teaches the opposite; the preserving agent compositions function by reducing gas (oxygen) concentration. Analysis of Example 2 shows that chlorine dioxide gas would not be generated from the combination of iron, ferric oxide and sodium chlorite in the presence of oxygen. Rather, sodium chlorite would oxidize the elemental iron resulting in the formation of ferric oxide. A gas such as chlorine dioxide would not be generated and released. Therefore, Matsumoto does not anticipate claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50.

Okuda describes UV irradiation of an aqueous system containing organochlorine solvents, barium titanate and dissolved hydrogen peroxide and/or ozone to decompose the organochlorine solvents to carbon dioxide, water, hydrochloric acid, etc. (See the Wellinghoff Declaration at ¶ 7.) Ozone is added to the reaction system before organochlorine decomposition and is not generated by reaction. Carbon dioxide is generated by the decomposition of organic matter, not by the oxidation or reaction of anions to generate a gas. Okuda therefore does not describe the reaction of anions to generate and release a gas as claimed. Okuda is further distinguished by the present amendment as the claims are now directed to solids containing anions, do not include bicarbonate or peroxide anions, exclude aqueous systems, and carbon dioxide gas and ozone gas are excluded from the scope of the claims. Therefore, Okuda does not anticipate claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50.

Ringo teaches a method for enhancing generation of chlorine dioxide by contacting an aqueous medium containing a dissolved chlorine dioxide precursor (e.g., sodium chlorite) with an amount of chlorine gas, sodium hypochlorite, or hydrochloric acid which reacts with a catalytic amount of a transition metal. (See the Wellinghoff

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Declaration at ¶ 8.) Chlorine dioxide is described as being generated from dissolved sodium chlorite in acidic systems in the absence of a transition metal (Ringo at column 3:56-63, and throughout the Examples). A transition metal is described only as a gas generation enhancer (column 3:64 to column 4:2, and throughout the Examples). Ringo therefore does not describe the reaction of anions to generate and release a gas as claimed. Ringo is further distinguished by the present amendment as the claims are now directed to solids containing anions and exclude aqueous systems. Therefore, Ringo does not anticipate claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50.

Schenck teaches a method of oxidative purification of a medium that contains contaminants in the form of an oxidizable carbon compound. (See the Wellinghoff Declaration at ¶ 9.) Example 5 describes decomposing by UV irradiation trichloroethane solvent in an acidic aqueous solution containing dissolved sodium persulfate. Column 14:33-56 describes adding hydrogen peroxide and titanium dioxide as decomposition enhancers. As with Okuda, a gas is generated by the decomposition of organic matter in the absence of a catalyst, not by the oxidation or reaction of anions to generate a gas. Schenck therefore does not describe the reaction of anions to generate and release a gas as claimed. Schenck is further distinguished by the present amendment as the claims are now directed to solids containing anions and exclude aqueous systems. Therefore, Okuda does not anticipate claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50.

- C. Rejection under 35 U.S.C. §102(e) over Hancock U.S. Patent No. 5,772,897 or Yoshida et al. U.S. Patent No. 6,306,352

Reconsideration is respectfully requested of the rejection of claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49 as being anticipated by Hancock U.S. Patent No. 5,772,897 or Yoshida et al. U.S. Patent No. 6,306,352.

Hancock and Yoshida were discussed and remarked upon in the 12 December

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2003 response to the 16 September 2003 Office action and the 10 December 2004 response to the 10 September 2004 Office action, the contents of which are incorporated into this response. Applicants offer the following additional remarks regarding those references.

Hancock teaches a catalytic oxidation process in an aqueous medium comprising adding an oxidizing agent to the aqueous medium and passing the mixture through a fixed bed of a particulate catalyst. (See the Wellenghoff Declaration at ¶¶ 10 and 11.) The oxidizing agent is decomposed by the catalyst with the evolution of oxygen (column 2:18-29). Hancock teaches decomposition to form carbon dioxide and water (column 3:20-32 and Example 4) by the decomposition of organic matter, not by the oxidation of anions (column 5:35; Example 4; application specification at page 1, lines 20-29). Hancock, Example 4, describes an alumina support impregnated with copper and zinc nitrate and nickel oxide catalyst. Applicants note that nitrates such as copper or zinc nitrate (i.e., copper or zinc metal present in its highest oxidation state) are not described in the instant specification as gas generating anions. The specification describes only nitrite anions (i.e., copper or zinc metal in a lower oxidation state) as a nitrogen dioxide, nitric oxide or nitrous oxide substrate. Nitrate anions described by Hancock are excluded from the scope of amended claims 1, 11, 38 and 50, as are bicarbonate or carbonate anions. Carbon dioxide gas is excluded from the scope of claims 8 and 46. Hancock is further distinguished by the present amendment as the claims are now directed to solids containing anions and exclude aqueous systems. Therefore, Hancock does not anticipate claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50.

Yoshida teaches an oxygen-generating material which is prepared by packaging solid peroxide and peroxide decomposition catalyst in a moisture-permeable material. (See the Wellenghoff Declaration at ¶ 12.) The oxygen generating materials of Yoshida generate oxygen by coming in contact with water or moisture (column 8, lines 6 to column 9, line 6). Yoshida describes moisture activated decomposition, not energy activated oxidation or reaction of anions, to generate and release a gas. If the

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decomposition in Yoshida were instead energy activated, as in the present claims, then Yoshida's composition would produce ozone, not oxygen. The fact that the decomposition described by Yoshida would produce ozone if it were energy activated, but instead only oxygen is generated, shows that Yoshida does not teach or suggest the possibility of energy activation. Yoshida is further distinguished by the present amendment as the scope of claims 1 and 38 now excludes bicarbonate, carbonate and peroxide anions. Further, the scope of claims 8 and 46 now excludes ozone. Therefore, Yoshida does not anticipate claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49.

- D. Rejection under 35 U.S.C. §102(e) over Zhang et al. U.S. Patent No. 5,783,105 or Yoshida et al. U.S. Patent No. 5,898,126

Reconsideration is respectfully requested of the rejection of claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49 as being anticipated by Zhang et al. U.S. Patent No. 5,783,105 or Yoshida et al. U.S. Patent No. 5,898,126.

Zhang and Yoshida were discussed and remarked upon in the 12 December 2003 response to the 16 September 2003 Office action and the 10 December 2004 response to the 10 September 2004 Office action, the contents of which are incorporated into this response. Applicants offer the following additional remarks regarding those references.

The Wellinghoff Declaration at ¶ 13 addresses Zhang. The Office stated that Zhang's "oxygen generating compositions produced small quantities of carbon dioxide due to the use of sodium carbonate [and] hydrogen peroxide adduct." Zhang is distinguished by the present amendment as the scope of claims 1 and 38 now excludes carbonate and peroxide anions. Zhang is further distinguished by the present amendment as claims 8 and 46 are amended to exclude carbon dioxide gas. Therefore, Zhang does not anticipate claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49.

The Wellinghoff Declaration at ¶ 14 addresses Yoshida. The Office stated that

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"Yoshida teaches air bag generating compositions that comprise a nitrogen containing organic compound, an oxygen generating compound, and a catalyst, such as copper oxide...". The gas generated by the nitrogen containing organic compounds present in the Yoshida compositions is nitrogen (see column 1:57-61). Applicants note that in Table 1, gas generating base 6 is guanidine bicarbonate, and Examples 4-6 include sodium chlorate as an oxidizing agent. Applicants further note that sodium chlorate (i.e., sodium metal present in its highest oxidation state) is not described in the instant specification as a gas generating substrate. The specification describes only sodium chlorite (i.e., sodium metal in a lower oxidation state) as a chlorine dioxide substrate. Yoshida is distinguished by the present amendment as chlorate or bicarbonate anions are excluded from the scope of amended claims 1 and 38. Yoshida is further distinguished by the present amendment as claims 8 and 46 are amended to exclude carbon dioxide gas. Therefore, Yoshida does not anticipate claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49.

E. Rejection under 35 U.S.C. §102(b) over
Cawfield et al. U.S. Patent. No. 5,411,643

Reconsideration is respectfully requested of the rejection of claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49 as being anticipated by Cawfield et al. U.S. Patent No. 5,411,643.

Cawfield was discussed and remarked upon in the 12 December 2003 response to the 16 September 2003 Office action and the 10 December 2004 response to the 10 September 2004 Office action, the contents of which are incorporated into this response. Applicants offer the following additional remarks.

The Wellinghoff Declaration at ¶ 15 addresses Cawfield. The Office stated that the "claims are deemed to be anticipated over the chlorine generating aqueous compositions comprising chloric acid, zinc oxide and manganese oxide...".

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Cawlfeld is distinguished by the present amendment as claims 1 and 38 are amended to include the anion features of now canceled claims 6 and 43, respectively; chloric acid is excluded from the scope of claims 1 and 38. Cawlfeld is further distinguished from claims 8 and 46 because chlorine gas is excluded. Cawlfeld is yet further distinguished by the present amendment as the claims are now directed to solids containing anions thereby excluding aqueous systems. Therefore, Cawlfeld does not anticipate claims 1, 2, 4, 5, 7-10, 38, 39, 41, 42, and 44-49.

F. Rejection under 35 U.S.C. §103(a) over Yoshida et al. U.S. Patent
No. 5,898,126

Reconsideration is respectfully requested of the rejection of claims 6 and 43 as being obvious over Yoshida et al. U.S. Patent. No. 5,898,126. Claims 6 and 43 are canceled by the present amendment and their features, less bicarbonate, carbonate and peroxide anions, are incorporated into claims 1 and 38, respectively.

As indicated above, Yoshida was previously discussed and remarked upon and the Wellinghoff Declaration at ¶ 14 further addresses Yoshida. Applicants offer the following additional remarks regarding that reference.

Yoshida describes a two component composition comprising a nitrogen-containing organic compound and at least one oxidizing agent selected from the group consisting of oxo halogen acid salts and nitrates (column 3:23-27). Yoshida describes only chlorates such as potassium chlorate and sodium chlorate and does not describe chlorites or hypochlorites as suitable oxo halogen salts (throughout the specification and claims, e.g., columns 1:48-56 and 4:2-8). Similarly, Yoshida does not describe chlorite, bisulfite, sulfite, hydrosulfide, sulfide, hypochlorite, cyanide or nitrite as required by

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claims 1 and 38. Yoshida instead describes sulfates (e.g., columns 1:48-56, 5:36-40 and 6:26-29) and nitrates (e.g., abstract, claims and column 4:2-15). To the contrary, the present specification is silent as to any mention of chlorates, sulfates and nitrates, but instead describes only lower oxidation state chlorites, sulfites and nitrites. The claimed anions therefore do not fall within the broad category of the oxo halogen salts of Yoshida. Yoshida therefore leads one away from the claimed anions.

Yoshida further teaches that the present invention takes "...advantage of [the] reducing property of nitrogen-containing compounds, and causing a nitrogen-containing compound to react directly with a specific oxidizing agent selected from the group consisting of oxo halogen salts and nitrates..." (column 3:10-15). Therefore, the gas release mechanism taught by Yoshida is a reaction between a reducing organic nitrogen compound and an oxidizing agent. The mechanism of the present invention is different and wholly unrelated. In particular, it is believed that when exposed to electromagnetic energy, the catalyst absorbs a photon having energy in excess of the band gap of the energy-activated catalyst (page 18, lines 32 to page 19, line 2 of the specification). An electron is then promoted from the valence band to the conduction surface of the catalyst. An anion is oxidized by the activated catalyst surface when an electron is transferred from the anion to the valence band hole thereby forming the gas (page 11, lines 1-10). Yoshida describes the nitrogen-containing compounds as an organic compound containing at least one nitrogen (column 3:29-32). The claimed cyanide and nitrite anions are not described or suggested in Yoshida (see column 3:35-63); Yoshida leads one skilled in the art away from those anions. Further, as to cyanide, one skilled in the art would have believed that those anions would be excluded as suitable compounds by reason of its inherent toxicity, thus unsuitable for use in automotive airbags (see generally column 2:9-14). Therefore, the claimed catalyst and anions are not described by Yoshida, and the Yoshida nitrogen-containing compounds and oxo halogen salts are excluded from former claims 6 and 43 (amended claims 1 and 38).

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The Office stated that "[i]t would have been obvious to...use the broad disclosure of the reference as motivation to actually use one of applicant's claimed anions, such as chlorite or hypochlorite, since such anions directly fall within the broad category of oxo halogen salts as disclosed by the reference...". Under M.P.E.P. §2142, "[t]o support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination or the examiner must present a convincing line of argument as to why the artisan would have found to be obvious in light of the teaching of the references." (emphasis added).

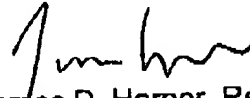
As described above, Yoshida teaches away from the claimed anions and describes oxo halogen salts which would not react to form a gas as claimed. Although Yoshida describes metal oxides as optional combustion control catalysts, one skilled in the art would have been led to believe that they are not required for gas generation. For gas generation, as compared to the present invention, Yoshida has different reaction elements (the reducing nitrogen containing organic compounds and the oxo halogen salt) and is missing the claimed photocatalyst and anions. One skilled in the art, therefore, would not have been motivated by Yoshida to substitute the claimed anions and catalyst for the nitrogen containing organic compounds and oxo halogen salts. Therefore, former claims 6 and 43 (amended claims 1 and 38) are non-obvious over Yoshida.

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PATENT**CONCLUSION**

In view of the foregoing, favorable reconsideration of pending claims 1, 2, 4, 5, 7-11, 38, 39, 41, 42, and 44-50 is respectfully requested.

Applicants request an extension of time to and including 20 March 2006 for filing a response to the Office action. The Commissioner is requested to charge the applicable extension fee of \$510.00 to Deposit Account No. 19-1345.

Respectfully submitted,



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